IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re **PATENT** application of:

Applicant:	David G. Land	
Serial No.:	10/824,156	Art Unit: 3641
Filed:	April 14, 2004	Confirmation No.: 6382
Title:	DETONATOR SYSTEM HAVING LINEAR ACTUATOR	
Examiner:	Troy Chambers	
Docket No.:	04E007	

APPEAL BRIEF

Mail Stop: Appeal Brief - Patents
Commissioner for Patents
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This brief is submitted in connection with the appeal of the above-identified application. Credit card payment of the fee set forth in 37 C.F.R. § 41.20(b)(2) is made in connection herewith. If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 18-0988, our Order No. RAYTP0254US.

I. Real Party in Interest

The real party in interest in the present appeal is Raytheon Company, which is the assignee of the present application.

II. Related Appeals and Interferences

Appellant, Appellant's undersigned representative, and/or the assignee of the present application are unaware of any prior or pending appeals, interferences or judicial proceedings that may be related to, directly affect or be directly affected by or have bearing on the Board's decision in the pending appeal.

III. Status of Claims

Claims 1-8, 10, 11, and 14-16 are in the instant proceeding, all of which are pending in the application, stand finally rejected and are the subject of this appeal.

Claims 17-20 have been withdrawn and may be subject to rejoinder if claim 1 is found allowable. Claims 9, 12, and 13 have been canceled and are not the subject of this appeal.

IV. Status of Amendments

No amendment was filed subsequent to the final Office Action dated September 11, 2007.

V. Summary of the Claimed Subject Matter

Independent claim 1 is directed to a detonation initiator 14 that comprises a linear actuator assembly 44, a capacitor 40, and an electrical circuit 38 (figures 2 and 8; page 4, lines 10-13; page 6, line 24 to page 7, line 11). The linear actuator assembly 44 is activated by the discharging of the capacitor 40 (page 3, lines 31-32; page 12, lines 6-11).

The claimed linear actuator assembly 44 has a core 58 with a permanent magnet 60 disposed with respect to a coil 42 (figure 4; page 8, lines 15-24). A firing pin 50 is coupled to the core 58 and disposed along a longitudinal axis of the linear actuator assembly 44 (figures 4 and 5; page 9, lines 7-15).

The claimed capacitor 40 stores electrical energy derived from an electrical pulse received by the detonation initiator 14 (page 3, lines 29-32; page 12, lines 6-7).

The claimed electrical circuit 38 monitors the charge on the capacitor 40 and discharges the capacitor 40 when the charge on the capacitor 40 reaches a charge threshold (page 12, lines 6-10). The capacitor 40 is discharged through the coil 42 of the linear actuator assembly 44 to propel the core 58 along the longitudinal axis of the linear actuator assembly 44 (page 12, lines 7-11).

The electrical circuit 38 includes a digital logic gate U1F to monitor the charge on the capacitor 40, where the digital logic gate U1F is configured as a comparitor to compare a representation of the charge of the capacitor 40 with a reference voltage established from the electrical pulse used to charge the capacitor 40 (figure 8; page 12, lines 12-29).

Furthermore, all operational power for the electrical circuit 38 is derived from the electrical pulse (page 12, line 29 to page 13, line 2). In this manner, no additional power supply sources are required to establish a reference point for comparison to the voltage of the claimed capacitor 40 and to initiate a detonation (Id.).

VI. Grounds of Rejection to be Reviewed

The rejection of each of claims 1-8, 10, 11, 14, and 15 under 35 U.S.C. § 103(a) over U.S. Patent No. 4,962,708 to Snyder in view of U.S. Patent No. 6,867,512 to Delaire and in further view of U.S. Patent No. 6,546,873 to Andrejkovics and in further view of U.S. Statutory Invention Registration No. H1068 to Huhmann and in further view of U.S. Patent No. 4,577,561 to Perry is presented for review.

The rejection of claim 16 under 35 U.S.C. § 103(a) over Snyder, Delaire, Andrejkovics and Huhmann, and further in view of U.S. Patent No. 3,792,663 to Schneider is presented for review.

VII. Argument

A. Rejection of Claims 1-8, 10, 11, and 14 Under U.S.C. § 103(a)

The claimed invention patentably defines over the applied references because none of Snyder, Delaire, Andrejkovics, Huhmann, Perry or their proposed combination disclose the claimed subject matter. Also, minimum elements for a *prima facie* case of obviousness have not been set forth in the Office action. In addition, at least Huhmann and Perry teach away from the claimed invention, and therefore, the references cannot be properly combined.

A(1). Overview of Claimed Invention

The claimed invention is directed to a detonation initiator. The primary market for this device is the U.S. military and the device is to be used by soldiers in combat situations, among other operational scenarios. Soldiers carry a limited amount of gear. Fresh batteries are not always available. If a soldier is attempting to depend on a device that requires battery power, and fresh batteries are not available or there is not sufficient time to change a battery, the soldier may find himself or herself in a problematic situation.

The claimed initiator reduces reliance on batteries to initiate a detonation. As claimed, the initiator works by deriving <u>all</u> operational power from an input electrical pulse. The received electric pulse may originate from, for example, a separate battery-powered receiver, such as a standard-issue remote activation munitions system (RAMS).[1]

Since all electrical power comes from the pulse, it is implicit that no batteries are used by the detonation initiator. It is recognized that the device that supplies the pulse may have a battery. But overall reliance on batteries is reduced since the initiator does not require its own battery, the initiator is tolerant of a non-ideal electrical pulse resulting from a diminished battery of the device that supplies the electrical pulse,[2] and the

[1] Application, page 4, line 16 to page 5, line 26.
[2] Id. at page 16, lines 11-30.

initiator does not load the device that supplies the pulse at times when the pulse is not being supplied.

In addition to having all operation power come from the received electrical pulse, one of the innovative features of the claimed initiator is to use a digital logic gate to monitor the charge on a capacitor so that when the charge on the capacitor reaches a charge threshold as determined by the digital logic gate, the capacitor is discharged through a coil of a linear actuator. The discharge propels a core with a permanent magnet with enough speed so that an attached firing pin can commence a chemical reaction portion of the detonation. Starting detonation with chemical energy has advantage over starting detonation with an electrically responsive blasting cap since potential hazards of premature detonation due to ambient electrical conditions as described in the background section of the application may be avoided.

Moreover, the claimed logic gate compares a representation of the charge of the capacitor with a reference voltage established from the electrical pulse. Additional details of an exemplary implementation of the claimed comparitor is present in the application at page 12, lines 12-29. As a result of this feature of the claimed invention, the Appellant has advantageously avoided a circuit arrangement that relies on an amount of power that would necessitate a battery or other dedicated power source.

The claimed circuit also may be contrasted with the types of circuits that rely on the presence of electrical power before receiving a signal to initiate detonation so that the circuit is "on" and can process the signal in an appropriate manner. To conserve power, these types of battery powered devices may have an on/off switch. Instead, the claimed electrical circuit is activated by the received electrical pulse itself. As such, the power source required by other devices is not needed in the claimed arrangement. This feature makes the claimed detonation initiator easier to use, faster to use, and more reliable than conventional devices. For instance, there is no need to check batteries prior to use and/or the claimed device may be implemented without an on/off switch that the soldier or other user has to remember to "throw."

In sum, the claimed detonation initiator can do what conventional detonation initiators cannot. Specifically, the claimed detonation initiator can work in combat and non-combat situations without a power source other than a received electric pulse.

A(2). Proposed Combination Does Not Arrive at the Claimed Invention

Even if one were to assume that the references are properly combinable, the specifically selected arrangement recited in claim 1 would not result. In particular, none of the references cited in the Office action, alone or in combination, disclose the claimed subject matter.

Turning first to Snyder, the Office action relies on figure 2 of Snyder for teaching a detonation initiator comprising a linear actuator assembly having a core, a coil, and a capacitor.[3] However, as the Office action recognizes, Snyder does not teach the core having a permanent magnet disposed with respect to the coil or the electrical circuit for monitoring charge on the capacitor, as claimed.[4]

In an attempt to cure these deficiencies, the Office action relies on elements 24 and 26 of figure 2 in Delaire for teaching a valve actuator comprising a linear actuator assembly having a solenoid and a permanent magnet.[5] However, Delaire does not disclose the electrical circuit for monitoring charge on the capacitor, as claimed.

To cure the deficiencies of Snyder and Delaire, the Office action relies on column 6, line 45 of Andrejkovics as teaching an apparatus for activating a remote device comprising a receiver and a capacitor.[6] The Office action further cites to column 7, lines 45-62 of Andrejkovics as disclosing a controller and microprocessor to monitor capacitor charge and to figure 5 as disclosing support logic and a timer.[7] In the cited passage and figure of Andrejkovics, there is no disclosure of the claimed electrical circuit. Rather, Andrejkovics describes an RF receiver including a firing circuit that has no

[3] Office Action dated September 11, 2007 at page 2, paragraph 4 to page 3.
[4] Id. at page 3.
[5] Id. at page 3, paragraph 5.
[6] Id. at page 3, paragraph 6 to page 4.
[7] Id. at page 4.

relevancy as a teaching description when compared to the claimed electrical circuit. Also, the claimed implementation is not timer based.

In particular, no portion of Andrejkovics discloses a digital logic gate to monitor the charge on the capacitor, where the digital logic gate is configured as a comparitor for comparing a representation of the charge of the capacitor with a reference voltage established from the electrical pulse used to charge the capacitor, as claimed. Andrejkovics simply discloses monitoring the charge state of the firing capacitor without providing details as to *how* the charge state is monitored. As such, Andrejkovics does not specifically disclose a digital logic gate configured as a comparitor in the claimed manner.

Also, the firing circuit in Andrejkovics does not teach an electrical circuit that derives all operational power from the electrical pulse that charges the capacitor. Rather, the Andrejkovics firing circuit operates with a power source: “The input power to the receiver is a 9-volt battery.”[8]

Andrejkovics was explicitly considered by the Appellant prior to filing the subject application. At page 4, line 16 to page 5, line 26, the application identifies that Andrejkovics discloses the RAMS-type unit that can function as the device that supplies the claimed electrical pulse. Therefore, it stands to reason that supplying the electrical pulse to the claimed detonation initiator is where the relevancy of Andrejkovics to the claimed subject matter stops.

Presumably realizing that Andrejkovics does not disclose the claimed electrical circuit, the Examiner introduces Huhmann and relies on the switching transistors 8 and 10 and the CMOS logic 6, as shown in figure 1 of Huhmann, for teaching a "CMOS capacitive charging circuit."[9] However, Huhmann does not cure the deficiencies of the above-discussed references.

In particular, the claimed electrical circuit is not a charging circuit, but a monitoring circuit. The circuitry in Huhmann is clearly powered by a battery and is used

[8] Andrejkovics, column 7, lines 41-42.
[9] Office Action dated September 11, 2007 at page 4, paragraph 7.

to fully charge the capacitor to the battery voltage within a 50 msec window,[10] whereas the claimed electrical circuit derives all operational power from the electrical pulse.

Moreover, Huhmann charges and discharges the capacitor in accordance with a sequence of control events.[11] For example, the Huhmann capacitor is discharged after the CMOS logic issues an “ARM COMMAND” to fire the piston actuator.[12] The issuance of an ARM COMMAND is not dependent on whether the capacitor has reached a charge threshold. Therefore, Huhmann does not disclose discharging the capacitor when the charge on the capacitor reaches a charge threshold, as claimed.

Furthermore, no portion of Huhmann discloses monitoring the charge on the capacitor by using a digital logic gate configured as a comparitor in the claimed manner, and discharging the capacitor when a charge threshold is detected. This is because Huhmann waits for control events, such as issuance of an ARM COMMAND, to discharge the capacitor. Consequently, Huhmann does not monitor the charge on the capacitor in the claimed manner. Huhmann does, however, use CMOS logic to detect malfunctioning of the fuze and, if needed, discharge the capacitor to "DUD the fuze."[13] This disclosure of “monitoring,” in Huhmann’s terms, is not particularly germane to the claimed invention since the claimed circuitry is used to monitor the capacitor's charge and discharge the capacitor through the actuator's coil to effectuate detonation when the charge reaches a threshold.

In sum, the Office action tersely concludes that Andrejkovics discloses a controller and microprocessor to monitor capacitor charge and Huhmann discloses a CMOS capacitive charging circuit comprising a CMOS switching transistor and CMOS logic.[14] Even though these parts are or include logic gates, there is no evidence that the recited parts teach or suggest a digital logic gate that is configured in the specifically claimed manner.

---

[10] Huhmann, column 2, lines 24-26.
[11] Id. at column 2, lines 26-29.
[12] Id. at column 2, lines 16-18.
[13] Id. at column 2, lines 21-23, lines 44-47.
[14] Office Action dated September 11, 2007 at page 4.

As a result, Andrejkovics, Huhmann and their combination fail to disclose the claimed electrical circuit.

The proposed combination includes Perry. But the Office action does not articulate which element of claim 1 is allegedly disclosed by Perry. One might presume that the Office action uses Perry to cure the above-discussed deficiencies of the Snyder, Delaire, Andrejkovics, and Huhmann combination. It will be immediately recognized, however, that adding Perry to the combination of the other four references does not result in the claimed invention since Perry does not disclose the claimed comparitor arrangement.

Perry discloses a digital time fuze.[15] In effect, Perry runs a clock that determines when an output pulse is to be supplied to initiate a detonator.[16] A logic circuit operates in conjunction with a counter to specify the exact time at which to supply the output pulse.[17]

In particular, Perry uses digital circuitry to provide a precise fuze run time by: "first, counting an oscillator frequency for a designated time interval to form an accumulated timer count, second, counting down from the accumulated timer count in the counter circuit utilizing a rate which is proportional to and derived from the oscillator frequency, then providing an output signal when the count reaches zero."[18] At the end of the fuze run time, the output signal, which is provided by the discharging of a capacitor, is supplied to a driver to initiate the detonator.[19]

As one skilled in the art will readily appreciate, the Perry capacitor is discharged only when a counter circuit reaches zero. In contrast, the claimed arrangement does not operate on time constraints, but rather, uses the claimed logic circuit to monitor the capacitor's charge and discharge the capacitor when the charge reaches a threshold. Consequently, since discharging of the Perry capacitor is triggered by a timing

[15] Perry, column 2, lines 11-16.
[16] See id. at column 3, line 66 to column 4, line 25.
[17] See id. at column 4, lines 49-56.
[18] Id. at column 7, lines 8-16.
[19] Id. at column 6, lines 1-5; column 7, lines 4-7.

consideration, rather than the claimed charge threshold, Perry has no need for a digital logic gate configured as a comparitor to compare the capacitor's charge with the claimed reference voltage. Thus, Perry's timing circuit is not instructive of the claimed arrangement.

Since none of the references disclose that which is claimed, even if the proposed combination were made, the claimed invention would not result.

A(3). Deficiencies in the Rejection

The MPEP clearly states: "The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness."[20] A prima facie case of obviousness requires "clear articulation of the reason(s) why the claimed invention would have been obvious."[21] In particular, "there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness."[22]

According to the MPEP, an obviousness analysis under 35 U.S.C. § 103 requires the consideration of all claim limitations.[23] The Office action claims to have addressed each limitation in accordance with 35 U.S.C. § 103.[24] However, the Office action dated September 11, 2007 makes no mention of the claimed digital logic gate configured as a comparitor to compare a representation of the charge of the capacitor with a reference voltage established from the electrical. Also, in response to the Applicant's arguments dated September 4, 2007, it appears that the Examiner attempts to replace the required factual showing with the statement that the "applicant merely responds by concluding that none of the references disclose a digital logic gate configured as a comparitor without providing a detailed analysis between the applicant's device and the disclosed

[20] MPEP § 2142 at page 2100-127.
[21] Id.
[22] Id. at page 2100-128.
[23] MPEP § 2143.03 at page 2100-142.
[24] Office Action dated September 11, 2007 at page 6, paragraph 14.

prior art to explain why the various devices are different."[25] Again, such a burden is not expected from the Appellant and, even if it were, such a detailed analysis has been provided in this Appeal Brief and in earlier replies to Office actions.

To supposedly demonstrate that the proposed combination discloses the claimed invention, the Office action lists selected components from the references without an explanation as to how these parts teach or suggest a digital logic gate configured as the claimed comparitor.[26] Also, in the case of Perry, the Office action lacks a discussion of how the reference even applies to the claims.

Since the Office action does not address all claim limitations when evaluating the patentability of claim 1, and provides reasons for combining the various references that are arbitrary and clearly the result of impermissible hindsight, the rejections cannot stand.

A(4). References Teach Away from the Claimed Subject Matter

In addition to the fact that the proposed combination does not arrive at the claimed invention, the proposed combination of references is not permissible because at least Huhmann and Perry teach away from the claimed subject matter.

As stated above, Huhmann clearly uses a battery to provide electrical energy to charge the capacitor and operate the remaining circuitry.[27] In fact, Huhmann explicitly relies on a battery by stating that the capacitor "must fully charge to the battery voltage within 50 msec."[28]

In contrast to Huhmann's reliance on batteries, claim 1 specifies that "all operational power for the electrical circuit is derived from the electrical pulse." As such, the teachings of Huhmann would lead a skilled person down a path divergent from the claimed invention because combining Huhmann with the remaining references would actually increase the combination's reliance on batteries.

---

[25] Office Action dated September 11, 2007 at page 6, paragraph 14.
[26] Office Action dated September 11, 2007 at pages 3-4.
[27] Huhmann, column 2, lines 24-29.
[28] Id. at column 2, lines 30-32 (emphasis added).

It appears that the Office action attempts to salvage the proposed combination by including Perry in the proposed combination, allegedly because Perry would remove the need for a battery.[29] But this approach is not logical. A skilled artisan presented with a reference that "must" rely on a battery (Huhmann) and a reference that reduces a need for a battery (allegedly Perry) would not attempt their combination.

Also, Perry discloses a timer-based detonation approach. The claimed approach is not timer-based, but is implemented to be as responsive as possible to an electrical input pulse. In this regards, Perry also teaches away from the claimed invention.

Therefore, the proposed combination is not supported in law. As set forth in the MPEP, a "prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention."[30] Therefore, portions of Huhmann and/or Perry that teach away from the claimed subject matter cannot be ignored and cannot be changed by the addition of another reference.

Accordingly, neither Huhmann nor Perry are properly combinable with the other cited references to make a valid obviousness rejection of claim 1.

B. Rejection of Claim 15 Under U.S.C. § 103(a)

Claim 15 depends from claim 1 and recites that the charge threshold is selected such that the capacitor takes at least half of the duration of the electrical pulse to reach the charge threshold. As described in the application at page 16, lines 1-10, this feature may serve to minimize repeat firing of the detonation initiator more than once per electrical pulse. This feature is not disclosed by Snyder, Delaire, Andrejkovics, Huhmann, Perry or their proposed combination.

C. Rejection of Claim 16 Under U.S.C. § 103(a)

Claim 16 depends from claim 1 and recites that the electrical circuit includes a component to adjust the charge threshold based on ambient temperature. As stated

[29] Office Action dated September 11, 2007 at page 11.
[30] MPEP § 2141.02 at page 2100-126.

above, claim 1 recites that the capacitor is discharged when the charge on the capacitor reaches a charge threshold. It is possible that, in cold environments, the electrical pulse may be unable to charge the capacitor to a charge threshold that would otherwise be achievable if the temperature conditions were more moderate. The claimed component adjusts the charge threshold of the capacitor based on ambient temperature (e.g., raises the charge threshold for warmer temperatures and lowers the charge threshold for colder temperatures), thereby increasing the likelihood that the capacitor will charge to the charge threshold.

The above-discussed combination of Snyder, Delaire, Andrejkovics, and Huhmann fails to disclose the features of claim 16. In an attempt to cure this deficiency, the Office action relies on Schneider for disclosing "an electrochemical timing apparatus including a thermistor 52 for automatically controlling the rate of [cathodic corrosion] of a wire in response to ambient temperature variations."[31] The description of Schneider in the Office action demonstrates that the reference does not teach a component to adjust the charge threshold of a capacitor based on ambient temperature, as claimed. Instead, Schneider uses ambient temperature variations to control the rate of *cathodic corrosion* of a wire to accomplish self-destruction of Schneider's device.[32] Therefore, Schneider cannot be said to disclose a component that adjusts the charge threshold of a capacitor based on ambient temperature, as claimed.

In addition, the combination fails to disclose the subject matter of the base claim, such as the claimed electrical circuit for monitoring charge on the capacitor with a digital logic gate arranged as a comparitor. Also, none of the references disclose that all operational power for the electrical circuit is derived from the electrical pulse.

[31] Office Action dated September 11, 2007 at page 5, paragraph 12.
[32] Schneider, column 2, line 64 to column 3, line 1.

D. Conclusion

For the reasons stated above, claim 1 and the claims depending from claim 1 recite patentable subject matter. Accordingly, reversal of the rejection of claims 1-8, 10, 11, and 14-16 under 35 U.S.C. § 103(a) is respectfully requested.

VIII. Claims Appendix

An appendix containing a copy of the claims involved in the appeal is attached to this brief.

IX. Evidence Appendix

An evidence appendix is attached, but identifies no items of evidence.

X. Related Proceedings Appendix

A related proceedings appendix is attached, but identifies no decisions.

Respectfully submitted,

RENNER, OTTO, BOISSELLE & SKLAR, LLP

By /MDavidGalin/
M. David Galin; Reg. No. 41,767

1621 Euclid Ave. - 19th Floor
Cleveland, Ohio 44115
Telephone: (216) 621-1113
Facsimile: (216) 621-6165

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this paper (and any other paper referred to as being attached or enclosed) is being transmitted electronically to the U.S. Patent and Trademark Office via the Electronic Filing System (EFS) on the date set forth below.

December 17, 2007	/M. David Galin/
Date	M. David Galin

CLAIMS APPENDIX

1. A detonation initiator comprising:

a linear actuator assembly having a core with a permanent magnet disposed with respect to a coil, and a firing pin coupled to the core and disposed along a longitudinal axis of the linear actuator assembly;

a capacitor for storing electrical energy derived from an electrical pulse received by the detonation initiator; and

an electrical circuit for monitoring charge on the capacitor and discharging the capacitor through the coil of the linear actuator assembly to propel the core along the longitudinal axis of the linear actuator assembly when the charge on the capacitor reaches a charge threshold, wherein the electrical circuit includes a digital logic gate to monitor the charge on the capacitor, the digital logic gate configured as a comparitor to compare a representation of the charge of the capacitor with a reference voltage established from the electrical pulse used to charge the capacitor and wherein all operational power for the electrical circuit is derived from the electrical pulse.

2. The detonation initiator according to claim 1, wherein the linear actuator assembly further includes a bearing guide in which the coil and core are disposed, the bearing guide retaining linear bearings adjacent an exterior of the core.

3. The detonation initiator according to claim 1, wherein the linear actuator assembly further includes a means to retract the core to a starting position following propulsion of the core.

4. The detonation initiator according to claim 1, wherein the coil is secured to a housing of the detonation initiator to minimize movement of the coil with respect to the housing during propulsion of the core.

5. The detonation initiator according to claim 1, further comprising a receptacle for receiving a chemical energy propagation assembly.

6. The detonation initiator according to claim 5, wherein propulsion of the core results in direct physical contact of the firing pin with a primer of the chemical energy propagation assembly.

7. The detonation initiator according to claim 1, wherein the electrical pulse is output by a receiver in response to a detonation signal transmitted to the receiver.

8. The detonation initiator according to claim 1, wherein the electrical pulse is input via at least one terminal that is coupled to the capacitor without a current limiting component.

9. (Canceled)

10. The detonation initiator according to claim 1, wherein the representation of the charge of the capacitor is generated by a portion of a voltage divider connected in parallel with the capacitor.

11. The detonation initiator according to claim 1, wherein the digital logic gate drives a transistor to allow conduction of the charge stored by the capacitor through the coil.

12.-13. (Canceled)

14. The detonation initiator according to claim 1, wherein the electrical pulse has a voltage of about 50 volts to about 54 volts and lasts for less than ten seconds.

15. The detonation initiator according to claim 1, wherein the charge threshold is selected such that the capacitor takes at least half of the duration of the electrical pulse to reach the charge threshold.

16. The detonation initiator according to claim 1, wherein the electrical circuit includes a component to adjust the charge threshold based on ambient temperature.

17. (Withdrawn) A demolition assembly comprising:

the detonation initiator of claim 1; and

a receiver for outputting the electrical pulse in response to a detonation signal transmitted to the receiver.

18. (Withdrawn) The demolition assembly according to claim 17, further comprising a chemical energy propagation assembly connected to the detonation initiator, the chemical energy propagation assembly being activated by propulsion of the core.

19. (Withdrawn) The demolition assembly according to claim 18, wherein the chemical energy propagation assembly is a shock tube assembly having a primer, a shock tube and a blasting cap, the shock tube having a proximal end connected to the primer and a distal end connected to the blasting cap.

20. (Withdrawn) The demolition assembly according to claim 17, further comprising an explosive charge connected to the detonation initiator by a chemical energy propagation assembly.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None